

What Is Claimed Is:

1. An isolated nucleic acid molecule comprising a polynucleotide having a nucleotide sequence at least 95% identical to a sequence selected from the group consisting of:

(a) a nucleotide sequence encoding the TR2 receptor having the amino acid sequence at positions from about -36 to about 247 in SEQ ID NO:2;

(b) a nucleotide sequence encoding the TR2 receptor polypeptide having the amino acid sequence at positions from about -35 to about 247 in SEQ ID NO:2;

(c) a nucleotide sequence encoding the TR2 receptor polypeptide having the amino acid sequence at positions from about 1 to about 247 in SEQ ID NO:2;

(d) a nucleotide sequence encoding the TR2 receptor having the amino acid sequence encoded by the cDNA clone contained in ATCC Deposit Number 97059;

(e) a nucleotide sequence encoding the mature TR2 receptor having the amino acid sequence encoded by the cDNA clone contained in ATCC Deposit Number 97059;

(f) a nucleotide sequence encoding the TR2 extracellular domain;

(g) a nucleotide sequence encoding the TR2 transmembrane domain;

(h) a nucleotide sequence encoding the TR2 intracellular domain;

(i) a nucleotide sequence encoding the TR2-SV1 receptor having the amino acid sequence at positions from about -36 to about 149 in SEQ ID NO:5;

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(j) a nucleotide sequence encoding the TR2-SV1 receptor having the amino acid sequence at positions from about -35 to about 149 in SEQ ID NO:5;

(k) a nucleotide sequence encoding the TR2-SV1 receptor having the amino acid sequence at positions from about 1 to about 149 in SEQ ID NO:5;

(l) a nucleotide sequence encoding the TR2-SV1 receptor having the amino acid sequence encoded by the cDNA clone contained in ATCC Deposit Number 97058;

(m) a nucleotide sequence encoding the mature TR2-SV1 receptor having the amino acid sequence encoded by the cDNA clone contained in ATCC Deposit Number 97058;

(n) a nucleotide sequence encoding the TR2-SV2 receptor having the amino acid sequence in SEQ ID NO:8;

(o) a nucleotide sequence encoding the TR2-SV2 receptor having the amino acid sequence at positions from about 2 to about 136 in SEQ ID NO:8;

(p) a nucleotide sequence encoding the TR2-SV2 receptor having the amino acid sequence encoded by the cDNA clone contained in ATCC Deposit Number 97057; and

(q) a nucleotide sequence complementary to any of the nucleotide sequences in (a), (b), (c), (d), (e), (f), (g), (h), (i), (j), (k), (l), (m), (n), (o) or (p).

2. The nucleic acid molecule of claim 1 wherein said polynucleotide has the nucleotide sequence in SEQ ID NO:1, SEQ ID NO:4 or SEQ ID NO:7.

3. The nucleic acid molecule of claim 1 wherein said polynucleotide has the nucleotide sequence in SEQ ID NO:1 encoding a polypeptide having the

amino acid sequence in SEQ ID NO:2, the nucleotide sequence in SEQ ID NO:4 encoding a polypeptide having the amino acid sequence in SEQ ID NO:5, or the nucleotide sequence in SEQ ID NO:7 encoding a polypeptide having the amino acid sequence in SEQ ID NO:8.

5 4. The nucleic acid molecule of claim 1 wherein said polynucleotide has the nucleotide sequence in SEQ ID NO:1 encoding the mature TR2 receptor having the amino acid sequence in SEQ ID NO:2 or the nucleotide sequence in SEQ ID NO:4 encoding the mature TR2-SV1 receptor having the amino acid sequence in SEQ ID NO:5.

 5. The nucleic acid molecule of claim 1 wherein said polynucleotide has the complete nucleotide sequence of the cDNA clone contained in any one of ATCC Deposit Numbers 97059, 97058 or 97057.

 6. The nucleic acid molecule of claim 1 wherein said polynucleotide has the nucleotide sequence encoding TR2 receptors having the amino acid sequence encoded by the cDNA clone contained in any one of ATCC Deposit Numbers 97059, 97058 or 97057.

 7. The nucleic acid molecule of claim 1 wherein said polynucleotide has the nucleotide sequence encoding mature TR2 receptors having the amino acid sequence encoded by the cDNA clone contained in any one of ATCC Deposit Numbers 97059 or 97058.

 8. An isolated nucleic acid molecule comprising a polynucleotide which hybridizes under stringent hybridization conditions to a polynucleotide having a nucleotide sequence identical to a nucleotide sequence in (a), (b), (c), (d), (e), (f), (g), (h), (i), (j), (k), (l), (m), (n), (o), (p) or (q) of claim 1 wherein said

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polynucleotide which hybridizes does not hybridize under stringent hybridization conditions to a polynucleotide having a nucleotide sequence consisting of only A residues or of only T residues.

5 9. An isolated nucleic acid molecule comprising a polynucleotide which encodes the amino acid sequence of an epitope-bearing portion of a TR2 receptor having an amino acid sequence in (a), (b), (c), (d), (e), (f), (g), (h), (i), (j), (k), (l), (m), (n), (o), (p) or (q) of claim 1.

10. The isolated nucleic acid molecule of claim 9, which encodes an epitope-bearing portion of a TR2 receptor selected from the group consisting of: a polypeptide comprising amino acid residues from about 3 to about 34 in SEQ ID NO:2; a polypeptide comprising amino acid residues from about 70 to about 84 in SEQ ID NO:2; a polypeptide comprising amino acid residues from about 106 to about 153 in SEQ ID NO:2; a polypeptide comprising amino acid residues from about 240 to about 247 in SEQ ID NO:2; a polypeptide comprising amino acid residues from about 3 to about 34 in SEQ ID NO:5; a polypeptide comprising amino acid residues from about 63 to about 100 in SEQ ID NO:5; a polypeptide comprising amino acid residues from about 135 to about 149 in SEQ ID NO:5; a polypeptide comprising amino acid residues from about 56 to about 68 in SEQ ID NO:8; and a polypeptide comprising amino acid residues from about 93 to about 136 in SEQ ID NO:8.

11. The isolated nucleic acid molecule of claim 1, which encodes a TR2 receptor extracellular domain.

12. The isolated nucleic acid molecule of claim 1, which encodes a TR2 receptor transmembrane domain.

13. The isolated nucleic acid molecule of claim 1, which encodes a TR2 receptor intracellular domain.

14. A method for making a recombinant vector comprising inserting an isolated nucleic acid molecule of claim 1 into a vector.

15. A recombinant vector produced by the method of claim 14.

16. A method of making a recombinant host cell comprising introducing the recombinant vector of claim 15 into a host cell.

17. A recombinant host cell produced by the method of claim 16.

18. A recombinant method for producing a TR2 polypeptide, comprising culturing the recombinant host cell of claim 17 under conditions such that said polypeptide is expressed and recovering said polypeptide.

19. An isolated nucleic acid molecule comprising a polynucleotide having a nucleotide sequence in SEQ ID NO:1 wherein nucleotide 314 is either guanine or adenine, nucleotide 386 is either thymine or cytosine, and nucleotide 627 is either thymine or cytosine.

20. An isolated nucleic acid molecule comprising a polynucleotide having a nucleotide sequence encoding the TR2 receptor having the amino acid sequence in SEQ ID NO:2 wherein amino acid number -20 is either lysine or arginine and amino acid number 5 is either serine or phenylalanine.

21. An isolated TR2 polypeptide having an amino acid sequence at least 95% identical to a sequence selected from the group consisting of:

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- (a) the amino acid sequence of the TR2 polypeptide having the amino acid sequence at positions from about -36 to about 247 in SEQ ID NO:2;
- (b) the amino acid sequence of the TR2 polypeptide having the amino acid sequence at positions from about -35 to about 247 in SEQ ID NO:2;
- (c) the amino acid sequence of the TR2 polypeptide having the amino acid sequence at positions from about 1 to about 247 in SEQ ID NO:2;
- (d) the amino acid sequence of the TR2 polypeptide having the amino acid sequence encoded by the cDNA clone contained in ATCC Deposit Number 97059;
- (e) the amino acid sequence of the mature TR2 polypeptide having the amino acid sequence encoded by the cDNA clone contained in ATCC Deposit Number 97059;
- (f) the amino acid sequence of the TR2 receptor extracellular domain;
- (g) the amino acid sequence of the TR2 receptor transmembrane domain;
- (h) the amino acid sequence of the TR2 receptor intracellular domain;
- (i) the amino acid sequence encoding the TR2-SV1 receptor having the amino acid sequence at positions from about -36 to about 149 in SEQ ID NO:5;
- (j) the amino acid sequence encoding the TR2-SV1 receptor having the amino acid sequence at positions from about -35 to about 149 in SEQ ID NO:5;
- (k) the amino acid sequence encoding the TR2-SV1 receptor having the amino acid sequence at positions from about 1 to about 149 in SEQ ID NO:5;

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(l) the amino acid sequence encoding the TR2-SV1 receptor having the complete amino acid sequence encoded by the cDNA clone contained in ATCC Deposit Number 97058;

(m) the amino acid sequence encoding the mature TR2-SV1 receptor having the amino acid sequence encoded by the cDNA clone contained in ATCC Deposit Number 97058;

(n) the amino acid sequence encoding the TR2-SV2 receptor having the amino acid sequence in SEQ ID NO:8;

(o) the amino acid sequence encoding the TR2-SV2 receptor having the amino acid sequence at positions from about 2 to about 136 in SEQ ID NO:8;

(p) the amino acid sequence encoding the TR2-SV2 receptor having the amino acid sequence encoded by the cDNA clone contained in ATCC Deposit Number 97057; and

(q) the amino acid sequence of an epitope-bearing portion of any one of the polypeptides of (a), (b), (c), (d), (e), (f), (g), (h), (i), (j), (k), (l), (m), (n), (o) or (p).

22. An isolated polypeptide comprising an epitope-bearing portion of a TR2 receptor protein, wherein said portion is selected from the group consisting of: a polypeptide comprising amino acid residues from about 3 to about 34 in SEQ ID NO:2; a polypeptide comprising amino acid residues from about 70 to about 84 in SEQ ID NO:2; a polypeptide comprising amino acid residues from about 106 to about 153 in SEQ ID NO:2; a polypeptide comprising amino acid residues from about 240 to about 247 in SEQ ID NO:2; a polypeptide comprising amino acid residues from about 3 to about 34 in SEQ ID NO:5; a polypeptide comprising amino acid residues from about 63 to about 100 in SEQ ID NO:5; a polypeptide comprising amino acid residues from about 135 to about 149 in SEQ ID NO:5; a polypeptide comprising amino acid residues from about 56 to about 68 in SEQ

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ID NO:8; or a polypeptide comprising amino acid residues from about 93 to about 136 in SEQ ID NO:8.

23. An isolated antibody that binds specifically to a TR2 receptor polypeptide of claim 21.

24. A method of treating herpes simplex viral infection comprising introducing an effective amount of a soluble fragment of a TR2 polypeptide into an individual to be treated in admixture with a pharmaceutically acceptable carrier.

25. A method of treating a disease state associated with aberrant cell survival comprising introducing an effective amount of a TR2 protein, or agonist or antagonist thereof, into an individual to be treated in admixture with a pharmaceutically acceptable carrier.

26. A method of screening for agonists and antagonists of TR2 activity comprising:

- (a) contacting cells which express TR2 polypeptides with a candidate compound,
- (b) assaying a cellular response, and
- (c) comparing the cellular response to a standard cellular response made in absence of the candidate compound; whereby, an increased cellular response over the standard indicates that the compound is an agonist and a decreased cellular response over the standard indicates that the compound is an antagonist.

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